

COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF HEALTH

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OFFICE OF RADIOLOGICAL HEALTH  
109 Governor Street, 7<sup>th</sup> Floor, Richmond, Virginia 23219  
Office (804) 864-8150  
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**ENVIRONMENTAL  
RADIATION  
MONITORING  
PROGRAM**

**2017  
1<sup>st</sup> QUARTER REPORT**



COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF HEALTH

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# Sampling Locations

# Sampling Locations for Surry Nuclear Power Station



Photo Courtesy of Dominion Power

LOCATION	TYPE	FREQUENCY	PAGE
<b><u>AIR / CHARCOAL FILTER</u></b>			
SPS-A-1 Surry Power Station	Air Particulate	Weekly	9
	Release Gas	Weekly	14
SPS-A-2 Jamestown State Park - Historical Site	Air Particulate	Weekly	10
	Release Gas	Weekly	15
<b><u>SURFACE WATER</u></b>			
SPS-W-1 Surry Discharge Canal	Surface Water	Weekly	19
SPS-W-2 James River – Robious Landing	Surface Water	Weekly	20
SPS-W-3 James River – Scotland Wharf	Surface Water	Weekly	21
<b><u>FISH</u></b>			
SPS-F-1 James River – .5 miles off Discharge Canal	Edible Fish	2x per year	27
SPS-R-1 James River – Various Locations	Shellfish	Annually	28
<b><u>SILT</u></b>			
SPS-S-1 James River - 1/2 Mile Off Discharge Canal	Silt	2x per year	29
<b><u>MILK</u></b>			
SPS-M-1 Surry County - W.B. Epps Dairy	Raw	Quarterly	32
<b><u>DOSIMETER</u></b>			33
D-42 Surry County - Lawnes Creek	Gamma in Air	Quarterly	
D-43 Surry County - Route 628	Gamma in Air	Quarterly	
D-44 Jamestown State Park - Historical Site	Gamma in Air	Quarterly	
D-45 Newport News - Lee Hall	Gamma in Air	Quarterly	
D-73 Naval Weapons Station - Enlisted Quarters	Gamma in Air	Quarterly	
D-76 Newport News - Fort Eustis	Gamma in Air	Quarterly	
D-77 Williamsburg - Busch Gardens	Gamma in Air	Quarterly	
D-78 Williamsburg - Williamsburg Airport	Gamma in Air	Quarterly	
D-79 Surry County - Scotland Wharf	Gamma in Air	Quarterly	
D-80 Surry County - Bacon's Castle	Gamma in Air	Quarterly	
D-81 Surry County – Alliance	Gamma in Air	Quarterly	
D-82 Surry County - Hog Point	Gamma in Air	Quarterly	
<b><u>VEGETATION</u></b>			
SPS-V-1 Surry County – Local Farmers	Edible Vegetation	2x per year	34

# Sampling Locations for North Anna Nuclear Power Station



Photo Courtesy of Dominion Power

LOCATION	TYPE	FREQUENCY	PAGE
<b><u>AIR / CHARCOAL FILTER</u></b>			
NAPS-A-1 Louisa County - North Anna Power Station	Air Particulate	Weekly	12
	Gas Release	Weekly	17
NAPS-A-2 Louisa County – Bumpass Volunteer Fire	Air Particulate	Weekly	13
	Gas Release	Weekly	18
<b><u>SURFACE WATER</u></b>			
NAPS-W-1 North Anna Power Discharge Canal	Surface Water	Weekly	22
NAPS-W-2 North Anna River @ Rt. 651	Surface Water	Weekly	23
NAPS-W-3 North Anna River @ Rt. 522	Surface Water	Weekly	24
<b><u>FISH</u></b>			
NAPS-F-1 North Anna Lake - Second Cooling Lagoon	Edible Fish	2x per year	27
<b><u>SILT</u></b>			
NAPS-S-1 Waste Treatment shoreline soil	Soil	2x per year	29
<b><u>MILK</u></b>			
NAPS-M-1 Louisa County - Lakeside Dairy	Raw	Quarterly	32
<b><u>DOSIMETER</u></b>			
D-35 NAPS	Gamma in Air	Quarterly	33
D-50 Louisa County – Mineral	Gamma in Air	Quarterly	
D-51 Louisa County - Wares Crossroads	Gamma in Air	Quarterly	
D-52 Spotsylvania - Good Hope Church	Gamma in Air	Quarterly	
D-53 Spotsylvania - Route 614	Gamma in Air	Quarterly	
D-54 Louisa County - Frederick's Hall	Gamma in Air	Quarterly	
D-84 Louisa County - Route 685	Gamma in Air	Quarterly	
D-85 Spotsylvania Co. - Route 713	Gamma in Air	Quarterly	
D-86 Louisa County – Bumpass Volunteer Fire	Gamma in Air	Quarterly	
D-87 Spotsylvania Co. - Levy	Gamma in Air	Quarterly	
D-88 Louisa Co. - Rt. 700 (near station)	Gamma in Air	Quarterly	
D-89 Louisa County - Aspen Hill	Gamma in Air	Quarterly	
<b><u>VEGETATION</u></b>			
NAPS-V-1 Louisa County – Local Farmers	Edible Vegetation	2x per year	34

## Sampling Locations - Babcock & Wilcox

SAMPLE	LOCATION	TYPE	FREQUENCY	PAGE
<b><u>AIR</u></b>				
B&W-A-1	Eastern Site Boundary - Ballfield	Air Particulate	Quarterly	36
<b><u>SURFACE WATER</u></b>				
B&W-W-1	Eastern Site Boundary - Ballfield	Surface Water	Annually	37
B&W-W-2	James River Riverside Park	Surface Water	Annually	37
<b><u>SOIL</u></b>				
B&W-S-1	Eastern Site Boundary - Ballfield	Soil	Annually	36
B&W-S-2	James River Riverside Park	Soil	Annually	36
<b><u>VEGETATION</u></b>				
B&W-V-1	Eastern Site Boundary - Ballfield	Grass	Annually	37
B&W-V-2	James River Riverside Park	Grass	Annually	37

## Other Sampling Locations in Virginia

SAMPLE	LOCATION	TYPE	FREQUENCY	PAGE
<u>Air Filter &amp; Charcoal</u>				
Control/naturally occurring background				
D-40	Pocahontas State	Air Particulate	Weekly	11
	Park	Gas Release		16
<u>Dosimeters</u>				
Control/naturally occurring background				
PSP-D-1	Pocahontas State Park	Air Gamma	Quarterly	33
<u>Silt</u>				
NNSB-S-1	James River - NNSB - Pier 1	Silt	Quarterly	30
NNSB-S-2	James River - NNSB- Shipway 11	Silt	Quarterly	30
NNSY-S-1	Elizabeth River - NNSY - Drydock #4	Silt	Quarterly	31
NNSY-S-2	Elizabeth River - NNSY - Drydock #8	Silt	Quarterly	31
NNSY-S-3	Elizabeth River - NNSY - Wet Slip #1	Silt	Quarterly	31
<u>Surface Water</u>				
NNSB-W-1	James River - NNSB- Pier 1	Surface Water	Quarterly	25
NNSB-W-2	James River - NNSB- Shipway 11	Surface Water	Quarterly	25
NNSY-W-1	Elizabeth River - NNSY - Drydock #4	Surface Water	Quarterly	26
NNSY-W-2	Elizabeth River - NNSY - Drydock #8	Surface Water	Quarterly	26
NNSY-W-3	Elizabeth River - NNSY - Wet Slip #1	Surface Water	Quarterly	26

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### NO DETECTABLE RESULTS "NDR"

In order for a nuclide to be identified in the spectrum and entered into this report, constraints set by the HPGe analysis software need to be satisfied and the results of the confidence index calculation must be greater than the threshold (usually 0.3).

For the maximum confidence index, the following conditions need to be met.

- The nuclide energy peak needs to be within the energy tolerance of the library lines for that nuclide.
- A nuclide with multiple lines, must match the library peaks in the spectrum.
- The number of half-lives that has elapsed, between when the sample was taken and when it was counted, must be less than 10 half-lives or the confidence in the identification is small.

If the confidence index threshold and/or any of the three criteria are not met, then the nuclide is deemed no detectable results, (NDR).

### MINIMUM DETECTABLE ACTIVITY "MDA"

MDA as used in this report is defined as the lowest level of radioactivity that can be consistently and accurately detected in a given sample that is identified in the spectrum.

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# Analytical Results

# Virginia Department of Health

## AIR PARTICULATE

January 1, 2017 through March 31, 2017

### Surry Nuclear Power Plant – SPS-A-1

FIRST QUARTER REPORT 2017

Surry Power Station – on site

Week #	Station	Date		Gross Beta Activity pCi/meter <sup>3</sup>
		Start	Stop	
1 <sup>1</sup>	SPS-A-1	12/27/16	- 01/03/17	0.02+/-0.004
2 <sup>2</sup>	SPS-A-1	01/03/17	- 01/09/17	
3	SPS-A-1	01/09/17	- 01/17/17	0.03+/-0.003
4 <sup>3</sup>	SPS-A-1	01/17/17	- 01/23/17	0.02+/-0.003
5	SPS-A-1	01/23/17	- 01/30/17	0.03+/-0.005
6	SPS-A-1	01/30/17	- 02/06/17	0.07+/-0.010
7	SPS-A-1	02/06/17	- 02/13/17	0.04+/-0.010
8	SPS-A-1	02/13/17	- 02/21/17	0.04+/-0.010
9	SPS-A-1	02/21/17	- 02/27/17	0.05+/-0.010
10	SPS-A-1	02/27/17	- 03/06/17	0.04+/-0.005
11	SPS-A-1	03/06/17	- 03/13/17	0.04+/-0.006
12	SPS-A-1	03/13/17	- 03/20/17	0.03+/-0.005
13	SPS-A-1	03/20/17	- 03/27/17	0.05+/-0.007

<sup>1</sup> Due to the holiday, 12/26 and 01/02, sample collection days were adjusted.

<sup>2</sup> Due the snow day 01/09 and holidays 01/13 & 01/16, the sample collection was extended to 2 weeks.

<sup>3</sup> Due to the holiday, 01/16, sample collection was for six days.

# Virginia Department of Health

## AIR PARTICULATE

January 1, 2017 through March 31, 2017

### Jamestown – SPS-A-2

FIRST QUARTER REPORT 2017

#### Jamestown State Park & Historic Site

Week #	Station	Date		Gross Beta Activity pCi/meter <sup>3</sup>
		Start	Stop	
1 <sup>1</sup>	SPS-A-2	12/27/16	- 01/03/17	0.02+/-0.003
2 <sup>2</sup>	SPS-A-2	01/03/17	- 01/09/17	
3	SPS-A-2	01/09/17	- 01/17/17	0.02+/-0.003
4 <sup>3</sup>	SPS-A-2	01/17/17	- 01/23/17	0.02+/-0.003
5	SPS-A-2	01/23/17	- 01/30/17	0.03+/-0.004
6	SPS-A-2	01/30/17	- 02/06/17	0.07+/-0.010
7	SPS-A-2	02/06/17	- 02/13/17	0.05+/-0.010
8	SPS-A-2	02/13/17	- 02/21/17	0.06+/-0.010
9	SPS-A-2	02/21/17	- 02/27/17	0.04+/-0.010
10	SPS-A-2	02/27/17	- 03/06/17	0.03+/-0.005
11	SPS-A-2	03/06/17	- 03/13/17	0.04+/-0.006
12	SPS-A-2	03/13/17	- 03/20/17	0.03+/-0.004
13	SPS-A-2	03/20/17	- 03/27/17	0.04+/-0.006

<sup>1</sup> Due to the holiday, 12/26 and 01/02, sample collection days were adjusted.

<sup>2</sup> Due the snow day 01/09 and holidays 01/13 & 01/16, the sample collection was extended to 2 weeks.

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# Virginia Department of Health

## AIR PARTICULATE

January 1, 2017 through March 31, 2017

### Pocahontas – PSP-A-1

FIRST QUARTER REPORT 2017

#### Pocahontas State Park - Control

Week #	Station	Date		Gross Beta Activity pCi/meter <sup>3</sup>
		Start	Stop	
1 <sup>1</sup>	PSP-A-1	12/27/16	- 01/03/17	0.03+/-0.004
2 <sup>2</sup>	PSP-A-1	01/03/17	- 01/09/17	
3	PSP-A-1	01/09/17	- 01/17/17	0.03+/-0.004
4 <sup>3</sup>	PSP-A-1	01/17/17	- 01/23/17	0.02+/-0.004
5	PSP-A-1	01/23/17	- 01/30/17	0.04+/-0.006
6	PSP-A-1	01/30/17	- 02/06/17	0.07+/-0.010
7	PSP-A-1	02/06/17	- 02/13/17	0.05+/-0.010
8	PSP-A-1	02/13/17	- 02/21/17	0.07+/-0.010
9	PSP-A-1	02/21/17	- 02/27/17	0.07+/-0.010
10	PSP-A-1	02/27/17	- 03/06/17	0.07+/-0.010
11	PSP-A-1	03/06/17	- 03/13/17	0.09+/-0.013
12	PSP-A-1	03/13/17	- 03/20/17	0.05+/-0.007
13	PSP-A-1	03/20/17	- 03/27/17	0.06+/-0.008

<sup>1</sup> Due to the holiday, 12/26 and 01/02, sample collection days were adjusted.

<sup>2</sup> Due the snow day 01/09 and holidays 01/13 & 01/16, the sample collection was extended to 2 weeks.

<sup>3</sup> Due to the holiday, 01/16, sample collection was for six days.

# Virginia Department of Health

## AIR PARTICULATE

January 1, 2017 through March 31, 2017

### North Anna Power Station at Route 700 – NAPS-A-1

FIRST QUARTER REPORT 2017

#### Louisa County Route 700 / North Anna Power Station

Week #	Station	Date		Gross Beta Activity pCi/meter <sup>3</sup>
		Start	Stop	
1 <sup>1</sup>	NAPS-A-1	12/27/16	- 01/03/17	0.02+/-0.004
2 <sup>2</sup>	NAPS-A-1	01/03/17	- 01/09/17	
3	NAPS-A-1	01/09/17	- 01/17/17	0.03+/-0.004
4 <sup>3</sup>	NAPS-A-1	01/17/17	- 01/23/17	0.02+/-0.004
5	NAPS-A-1	01/23/17	- 01/30/17	0.03+/-0.005
6	NAPS-A-1	01/30/17	- 02/06/17	0.06+/-0.010
7	NAPS-A-1	02/06/17	- 02/13/17	0.06+/-0.010
8	NAPS-A-1	02/13/17	- 02/21/17	0.06+/-0.010
9	NAPS-A-1	02/21/17	- 02/27/17	0.07+/-0.010
10	NAPS-A-1	02/27/17	- 03/06/17	0.07+/-0.010
11	NAPS-A-1	03/06/17	- 03/13/17	0.07+/-0.010
12	NAPS-A-1	03/13/17	- 03/20/17	0.04+/-0.006
13	NAPS-A-1	03/20/17	- 03/27/17	0.06+/-0.008

<sup>1</sup> Due to the holiday, 12/26 and 01/02, sample collection days were adjusted.

<sup>2</sup> Due the snow day 01/09 and holidays 01/13 & 01/16, the sample collection was extended to 2 weeks.

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# Virginia Department of Health

## AIR PARTICULATE

January 1, 2017 through March 31, 2017

### Bumpass Fire Station – NAPS-A-2

FIRST QUARTER REPORT 2017

Louisa County / Bumpass Volunteer Fire Station

Week #	Station	Date		Gross Beta Activity pCi/meter <sup>3</sup>
		Start	Stop	
1 <sup>1</sup>	NAPS-A-2	12/27/16	- 01/03/17	0.02+/-0.003
2 <sup>2</sup>	NAPS-A-2	01/03/17	- 01/09/17	
3	NAPS-A-2	01/09/17	- 01/17/17	0.02+/-0.003
4 <sup>3</sup>	NAPS-A-2	01/17/17	- 01/23/17	0.02+/-0.003
5	NAPS-A-2	01/23/17	- 01/30/17	0.03+/-0.004
6	NAPS-A-2	01/30/17	- 02/06/17	0.06+/-0.010
7	NAPS-A-2	02/06/17	- 02/13/17	0.04+/-0.010
8	NAPS-A-2	02/13/17	- 02/21/17	0.07+/-0.010
9	NAPS-A-2	02/21/17	- 02/27/17	0.07+/-0.010
10	NAPS-A-2	02/27/17	- 03/06/17	0.05+/-0.008
11	NAPS-A-2	03/06/17	- 03/13/17	0.04+/-0.007
12	NAPS-A-2	03/13/17	- 03/20/17	0.03+/-0.005
13	NAPS-A-2	03/20/17	- 03/27/17	0.05+/-0.006

<sup>1</sup> Due to the holiday, 12/26 and 01/02, sample collection days were adjusted.

<sup>2</sup> Due the snow day 01/09 and holidays 01/13 & 01/16, the sample collection was extended to 2 weeks.

<sup>3</sup> Due to the holiday, 01/16, sample collection was for six days.

# Virginia Department of Health

## Gamma & Radiogas in Air

January 1, 2017 through March 31, 2017

### Surry Nuclear Power Plant – SPS-A-1

FIRST QUARTER REPORT 2017

Surry Power Station – on site

Week #	Station	Date			I-131 Activity pCi/meter <sup>3</sup>	Cs-134 Activity pCi/meter <sup>3</sup>	Cs-137 Activity pCi/meter <sup>3</sup>
		Start		Ended			
1 <sup>1</sup>	SPS-A-1	12/27/16	-	01/03/17	NDR	NDR	NDR
2 <sup>2</sup>	SPS-A-1	01/03/17	-	01/09/17			
3	SPS-A-1	01/09/17	-	01/17/17	NDR	NDR	NDR
4 <sup>3</sup>	SPS-A-1	01/17/17	-	01/23/17	NDR	NDR	NDR
5	SPS-A-1	01/23/17	-	01/30/17	NDR	NDR	NDR
6	SPS-A-1	01/30/17	-	02/06/17	NDR	NDR	NDR
7	SPS-A-1	02/06/17	-	02/13/17	NDR	NDR	NDR
8	SPS-A-1	02/13/17	-	02/21/17	NDR	NDR	NDR
9	SPS-A-1	02/21/17	-	02/27/17	NDR	NDR	NDR
10	SPS-A-1	02/27/17	-	03/06/17	NDR	NDR	NDR
11	SPS-A-1	03/06/17	-	03/13/17	NDR	NDR	NDR
12	SPS-A-1	03/13/17	-	03/20/17	NDR	NDR	NDR
13	SPS-A-1	03/20/17	-	03/27/17	NDR	NDR	NDR

<sup>1</sup> Due to the holiday, 12/26 and 01/02, sample collection days were adjusted.

<sup>2</sup> Due the snow day 01/09 and holidays 01/13 & 01/16, the sample collection was extended to 2 weeks.

<sup>3</sup> Due to the holiday, 01/16, sample collection was for six days.

# Virginia Department of Health

## Gamma & Radiogas in Air

January 1, 2017 through March 31, 2017

### Jamestown – SPS-A-2

FIRST QUARTER REPORT 2017

#### Jamestown State Park & Historic Site

Week #	Station	Date			I-131 Activity pCi/meter <sup>3</sup>	Cs-134 Activity pCi/meter <sup>3</sup>	Cs-137 Activity pCi/meter <sup>3</sup>
		Start		Ended			
1 <sup>1</sup>	SPS-A-2	12/27/16	-	01/03/17	NDR	NDR	NDR
2 <sup>2</sup>	SPS-A-2	01/03/17	-	01/09/17			
3	SPS-A-2	01/09/17	-	01/17/17	NDR	NDR	NDR
4 <sup>3</sup>	SPS-A-2	01/17/17	-	01/23/17	NDR	NDR	NDR
5	SPS-A-2	01/23/17	-	01/30/17	NDR	NDR	NDR
6	SPS-A-2	01/30/17	-	02/06/17	NDR	NDR	NDR
7	SPS-A-2	02/06/17	-	02/13/17	NDR	NDR	NDR
8	SPS-A-2	02/13/17	-	02/21/17	NDR	NDR	NDR
9	SPS-A-2	02/21/17	-	02/27/17	NDR	NDR	NDR
10	SPS-A-2	02/27/17	-	03/06/16	NDR	NDR	NDR
11	SPS-A-2	03/06/17	-	03/13/17	NDR	NDR	NDR
12	SPS-A-2	03/13/17	-	03/20/17	NDR	NDR	NDR
13	SPS-A-2	03/20/17	-	03/27/17	NDR	NDR	NDR

<sup>1</sup> Due to the holiday, 12/26 and 01/02, sample collection days were adjusted.

<sup>2</sup> Due the snow day 01/09 and holidays 01/13 & 01/16, the sample collection was extended to 2 weeks.

<sup>3</sup> Due to the holiday, 01/16, sample collection was for six days.

# Virginia Department of Health

## Gamma & Radiogas in Air

January 1, 2017 through March 31, 2017

### Pocahontas – PSP-A-1

FIRST QUARTER REPORT 2017

#### Pocahontas State Park - Control

Week #	Station	Date			I-131 Activity pCi/meter <sup>3</sup>	Cs-134 Activity pCi/meter <sup>3</sup>	Cs-137 Activity pCi/meter <sup>3</sup>
		Start		Ended			
1 <sup>1</sup>	PSP-A-1	12/27/16	-	01/03/17	NDR	NDR	NDR
2 <sup>2</sup>	PSP-A-1	01/03/17	-	01/09/17			
3	PSP-A-1	01/09/17	-	01/17/17	NDR	NDR	NDR
4 <sup>3</sup>	PSP-A-1	01/17/17	-	01/23/17	NDR	NDR	NDR
5	PSP-A-1	01/23/17	-	01/30/17	NDR	NDR	NDR
6	PSP-A-1	01/30/17	-	02/06/17	NDR	NDR	NDR
7	PSP-A-1	02/06/17	-	02/13/17	NDR	NDR	NDR
8	PSP-A-1	02/13/17	-	02/21/17	NDR	NDR	NDR
9	PSP-A-1	02/21/17	-	02/27/17	NDR	NDR	NDR
10	PSP-A-1	02/27/17	-	03/06/16	NDR	NDR	NDR
11	PSP-A-1	03/06/17	-	03/13/17	NDR	NDR	NDR
12	PSP-A-1	03/13/17	-	03/20/17	NDR	NDR	NDR
13	PSP-A-1	03/20/17	-	03/27/17	NDR	NDR	NDR

<sup>1</sup> Due to the holiday, 12/26 and 01/02, sample collection days were adjusted.

<sup>2</sup> Due the snow day 01/09 and holidays 01/13 & 01/16, the sample collection was extended to 2 weeks.

<sup>3</sup> Due to the holiday, 01/16, sample collection was for six days.

# Virginia Department of Health

## Gamma & Radiogas in Air

January 1, 2017 through March 31, 2017

### North Anna Power Station at Route 700 – NAPS-A-1

FIRST QUARTER REPORT 2017

#### Louisa County Route 700 / North Anna Power Station

Week #	Station	Date			I-131 Activity pCi/meter <sup>3</sup>	Cs-134 Activity pCi/meter <sup>3</sup>	Cs-137 Activity pCi/meter <sup>3</sup>
		Start		Ended			
1 <sup>1</sup>	NAPS-A-1	12/27/16	-	01/03/17	NDR	NDR	NDR
2 <sup>2</sup>	NAPS-A-1	01/03/17	-	01/09/17			
3	NAPS-A-1	01/09/17	-	01/17/17	NDR	NDR	NDR
4 <sup>3</sup>	NAPS-A-1	01/17/17	-	01/23/17	NDR	NDR	NDR
5	NAPS-A-1	01/23/17	-	01/30/17	NDR	NDR	NDR
6	NAPS-A-1	01/30/17	-	02/06/17	NDR	NDR	NDR
7	NAPS-A-1	02/06/17	-	02/13/17	NDR	NDR	NDR
8	NAPS-A-1	02/13/17	-	02/21/17	NDR	NDR	NDR
9	NAPS-A-1	02/21/17	-	02/27/17	NDR	NDR	NDR
10	NAPS-A-1	02/27/17	-	03/06/16	NDR	NDR	NDR
11	NAPS-A-1	03/06/17	-	03/13/17	NDR	NDR	NDR
12	NAPS-A-1	03/13/17	-	03/20/17	NDR	NDR	NDR
13	NAPS-A-1	03/20/17	-	03/27/17	NDR	NDR	NDR

<sup>1</sup> Due to the holiday, 12/26 and 01/02, sample collection days were adjusted.

<sup>2</sup> Due the snow day 01/09 and holidays 01/13 & 01/16, the sample collection was extended to 2 weeks.

<sup>3</sup> Due to the holiday, 01/16, sample collection was for six days.

# Virginia Department of Health

## Gamma & Radiogas in Air

January 1, 2017 through March 31, 2017

### Bumpass Fire Station – NAPS-A-2

FIRST QUARTER REPORT 2017

#### Louisa County / Bumpass Volunteer Fire Station

Week #	Station	Date			I-131 Activity pCi/meter <sup>3</sup>	Cs-134 Activity pCi/meter <sup>3</sup>	Cs-137 Activity pCi/meter <sup>3</sup>
		Start		Ended			
1 <sup>1</sup>	NAPS-A-2	12/27/16	-	01/03/17	NDR	NDR	NDR
2 <sup>2</sup>	NAPS-A-2	01/03/17	-	01/09/17			
3	NAPS-A-2	01/09/17	-	01/17/17	NDR	NDR	NDR
4 <sup>3</sup>	NAPS-A-2	01/17/17	-	01/23/17	NDR	NDR	NDR
5	NAPS-A-2	01/23/17	-	01/30/17	NDR	NDR	NDR
6	NAPS-A-2	01/30/17	-	02/06/17	NDR	NDR	NDR
7	NAPS-A-2	02/06/17	-	02/13/17	NDR	NDR	NDR
8	NAPS-A-2	02/13/17	-	02/21/17	NDR	NDR	NDR
9	NAPS-A-2	02/21/17	-	02/27/17	NDR	NDR	NDR
10	NAPS-A-2	02/27/17	-	03/06/16	NDR	NDR	NDR
11	NAPS-A-2	03/06/17	-	03/13/17	NDR	NDR	NDR
12	NAPS-A-2	03/13/17	-	03/20/17	NDR	NDR	NDR
13	NAPS-A-2	03/20/17	-	03/27/17	NDR	NDR	NDR

<sup>1</sup> Due to the holiday, 12/26 and 01/02, sample collection days were adjusted.

<sup>2</sup> Due the snow day 01/09 and holidays 01/13 & 01/16, the sample collection was extended to 2 weeks.

<sup>3</sup> Due to the holiday, 01/16, sample collection was for six days.

# Virginia Department of Health

## SURFACE WATER

January 1, 2017 through March 31, 2017

### Surry Power Station; Discharge Canal – SPS-W-1

Gamma and Tritium Activity – pCi/Liter

Date	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs- 134	Cs 137	Ba 140	H3 Activity
01/03/17 <sup>1</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR
01/09/17 <sup>2</sup>											
01/17/17 <sup>3</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	225 +/- 70
01/23/17 <sup>4</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	2703 +/- 254
02/01/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	526 +/- 122
02/06/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	225 +/- 70
02/13/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	601 +/- 122
02/13/17 <sup>D</sup>	<3.0	<3.0	<7.0	<3.0	<7.0	<6.0	<6.0	<3.0	<3.0	<15.0	55.5 +/- 9.9
02/21/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	826 +/- 140
02/27/17 <sup>5</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	526 +/- 100
03/06/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	1502 +/- 186
03/13/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	0 +/- 232
03/20/17 <sup>6</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	526 +/- 100
03/27/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	450 +/- 100

D=sample analyzed by DCLS

<sup>1</sup> Due to the holiday, 01/02, samples were collected 01/03.

<sup>2</sup> Due to snow day, 01/09, and the holiday, 01/13, no water samples collected this week.

<sup>3</sup> Due to the holiday, 01/16, grab samples were collected 01/17.

<sup>4</sup> Six day collection, due to holiday on 01/16

<sup>5</sup> Grab sample obtained due to water sampler malfunction

<sup>6</sup> Grab sample obtained due to GFR trip, receptacle reset

# Virginia Department of Health

## SURFACE WATER

January 1, 2017 through March 31, 2017

### James River; Robious Landing – SPS-W-2 Surry Control

Gamma and Tritium Activity – pCi/Liter

Date	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs- 134	Cs 137	Ba 140	H3 Activity
01/03/17 <sup>1</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR
01/09/17 <sup>2</sup>											
01/17/17 <sup>3</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	150 +/- 70
01/23/17 <sup>4</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	826 +/- 141
02/01/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	375 +/- 100
02/06/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	150 +/- 70
02/13/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	0 +/- 233
02/13/17D	<5.0	<5.0	<12.0	<5.0	<11.0	<10.0	<24.0	<5.0	<5.0	<49.0	<24.0
02/21/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	300 +/- 99
02/27/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	150 +/- 71
03/06/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	75 +/- 223
03/13/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	0 +/- 232
03/20/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	75 +/- 70
03/27/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	150 +/- 71

D=sample analyzed by DCLS

<sup>1</sup> Due to the holiday, 01/02, samples were collected 01/03.

<sup>2</sup> Due to snow day, 01/09, and the holiday, 01/13, no water samples collected this week.

<sup>3</sup> Due to the holiday, 01/16, grab samples were collected 01/17.

<sup>4</sup> Six day collection, due to holiday on 01/16

# Virginia Department of Health

## SURFACE WATER

January 1, 2017 through March 31, 2017

### James River; Scotland Wharf – SPS-W-3

Gamma and Tritium Activity – pCi/Liter

Date	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs- 134	Cs 137	Ba 140	H3 Activity
01/03/17 <sup>1</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR
01/09/17 <sup>2</sup>											
01/17/17 <sup>3</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	0 +/- 223
01/23/17 <sup>4</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	976 +/- 141
02/01/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	75 +/- 223
02/06/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	375 +/- 70
02/13/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	0 +/- 233
02/13/17D	<3.0	<3.0	<8.0	<3.0	<8.0	<6.0	<13.0	<3.0	<3.0	<26.0	<13.8
02/21/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	150 +/- 70
02/27/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	450 +/- 100
03/06/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	0 +/- 223
03/13/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	0 +/- 232
03/20/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	300 +/- 70
03/27/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	300 +/- 100

D=sample analyzed by DCLS

<sup>1</sup> Due to the holiday, 01/02, samples were collected 01/03.

<sup>2</sup> Due to snow day, 01/09, and the holiday, 01/13, no water samples collected this week.

<sup>3</sup> Due to the holiday, 01/16, grab samples were collected 01/17.

<sup>4</sup> Six day collection, due to holiday on 01/16

# Virginia Department of Health

## SURFACE WATER

January 1, 2017 through March 31, 2017

### North Anna Power Station; Discharge Canal – NAPS-W-1

Gamma and Tritium Activity – pCi/Liter

Date	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs- 134	Cs 137	Ba 140	H3 Activity
01/03/17 <sup>1</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR
01/09/17 <sup>2</sup>											
01/17/17 <sup>3</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	4880 +/- 345
01/23/17 <sup>4</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	5255 +/- 359
02/01/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	4279 +/- 223
02/06/17 <sup>5</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	5556 +/- 356
02/13/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	4204 +/- 314
02/13/17D	<3.0	<3.0	<7.0	<3.0	<7.0	<5.0	<4.0	<3.0	<3.0	<13.0	<14.0
02/21/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	4054 +/- 314
02/27/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	5556 +/- 366
03/06/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	4730 +/- 338
03/13/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	4730 +/- 329
03/20/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	3754 +/- 307
03/27/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	4655 +/- 331

D=sample analyzed by DCLS

<sup>1</sup> Due to the holiday, 01/02, samples were collected 01/03.

<sup>2</sup> Due to snow day, 01/09, and the holiday, 01/13, no water samples collected this week.

<sup>3</sup> Due to the holiday, 01/16, grab samples were collected 01/17.

<sup>4</sup> Six day collection, due to holiday on 01/16

<sup>5</sup> Grab sample due to water sampler failure

# Virginia Department of Health

## SURFACE WATER

January 1, 2017 through March 31, 2017

### North Anna River; Route 651 – NAPS-W-2

#### North Anna Control

Gamma and Tritium Activity – pCi/Liter

Date	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs- 134	Cs 137	Ba 140	H3 Activity
01/03/17 <sup>1</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR
01/09/17 <sup>2</sup>											
01/17/17 <sup>3</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	225 +/- 70
01/23/17 <sup>4</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	826 +/- 141
02/01/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	225 +/- 70
02/06/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	300 +/- 70
02/13/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	225 +/- 70
02/13/17D	<3.0	<3.0	<7.0	<3.0	<7.0	<6.0	<7.0	<3.0	<3.0	<18.0	<13.3
02/21/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	225 +/- 70
02/27/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	150 +/- 71
03/06/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR
03/13/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR
03/20/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	75 +/- 223
03/27/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	225 +/- 71

D=sample analyzed by DCLS

<sup>1</sup> Due to the holiday, 01/02, samples were collected 01/03.

<sup>2</sup> Due to snow day, 01/09, and the holiday, 01/13, no water samples collected this week.

<sup>3</sup> Due to the holiday, 01/16, grab samples were collected 01/17.

<sup>4</sup> Six day collection, due to holiday on 01/16

# Virginia Department of Health

## SURFACE WATER

January 1, 2017 through March 31, 2017

### North Anna River; Route 522 – NAPS-W-3

Gamma and Tritium Activity – pCi/Liter

Date	Mn 54	Co 58	Fe 59	Co 60	Zn 65	Zr 95	I 131	Cs- 134	Cs 137	Ba 140	H3 Activity
01/03/17 <sup>1</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR
01/09/17 <sup>2</sup>											
01/17/17 <sup>3</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	526 +/- 100
01/23/17 <sup>4</sup>	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	976 +/- 141
02/01/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	375 +/- 100
02/06/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	225 +/- 70
02/13/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR
02/13/17D	<5.0	<5.0	<11.0	<5.0	<11.0	<9.0	<11.0	<5.0	<3.0	<31.0	<14.3
02/21/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	375 +/- 99
02/27/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR
03/06/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	75 +/- 223
03/13/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR
03/20/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	150 +/- 70
03/27/17	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	NDR	150 +/- 71

D=sample analyzed by DCLS

<sup>1</sup> Due to the holiday, 01/02, samples were collected 01/03.

<sup>2</sup> Due to snow day, 01/09, and the holiday, 01/13, no water samples collected this week.

<sup>3</sup> Due to the holiday, 01/16, grab samples were collected 01/17.

<sup>4</sup> Six day collection, due to holiday on 01/16

# Virginia Department of Health

## SURFACE WATER

January 1, 2017 through March 31, 2017

### Newport News Shipyard

FIRST QUARTER REPORT 2017

#### James River – Pier 1 NNSB-W-1

Qtr	Date collected	Gamma Activity – pCi/Liter						Gross Beta pCi/Liter
		Ba-140	Cs-137	I-131	Mn-54	Zn-65	Zr95/Nb95	
1st	03/21/17	< 44.0	< 6.0	< 20.0	< 5.0	< 12.0	< 10.0	175.9 +/- 12

#### James River – Shipway #11 NNSB-W-2

Qtr	Date collected	Gamma Activity – pCi/Liter						Gross Beta pCi/Liter
		Ba-140	Cs-137	I-131	Mn-54	Zn-65	Zr95/Nb95	
1st	3/21/17	< 32.0	< 3.0	< 19.0	< 3.0	< 7.0	< 7.0	167.4 +/- 12.2

# Virginia Department of Health

## SURFACE WATER

January 1, 2017 through March 31, 2017

### Norfolk Naval Shipyard

FIRST QUARTER REPORT 2017

#### Elizabeth River – Dry Dock #4 NNSY-W-1

Qtr	Date collected	Gamma Activity – pCi/Liter					
	03/21/17						
		Ba-140	Cs-137	I-131	Mn-54	Zn-65	Zr95/Nb95
1st		< 29.0	< 3.0	< 16.0	< 3.0	< 7.0	< 6.0
Gross Beta		185.8 ± 12.6					
Gross Alpha		< 61.4					

#### Elizabeth River – Dry Dock #8 Norfolk Naval Shipyard NNSY-W-2

Qtr	Date collected	Gamma Activity – pCi/Liter					
	03/21/17						
		Ba-140	Cs-137	I-131	Mn-54	Zn-65	Zr95/Nb95
1st		< 57.0	< 5.0	< 31.0	< 5.0	< 11.0	< 11.0
Gross Beta		53.3 ± 14.6					
Gross Alpha		< 72.6					

#### Elizabeth River – Wet Slip #1 Norfolk Naval Shipyard NNSY-W-3

Qtr	Date collected	Gamma Activity – pCi/Liter					
	03/21/17						
		Ba-140	Cs-137	I-131	Mn-54	Zn-65	Zr95/Nb95
1st		< 59.0	< 6.0	< 32.0	< 5.0	< 12.0	< 11.0
Gross Beta		176.9 ± 12					
Gross Alpha		< 51.4					

# Virginia Department of Health

## FISH

January 1, 2017 through March 31, 2017

FIRST QUARTER REPORT 2017

Location Type of fish	Date Collected	Isotope	pCi/gram
North Anna 2 <sup>nd</sup> Cooling Lagoon	N/A	Ba-140	
		Cs-134	
		Cs-137	
		Co-58	
		Co-60	
NAPS- F-1 (Fish)		I-131	
		Fe-59	
		Mn-54	
		Ru-106	
		Ag-110	
		Zn-65	
		Nb-95	
Surry Discharge Canal	N/A	Ba-140	
		Cs-134	
		Cs-137	
		Co-58	
		Co-60	
SPS-F-1 (Fish)		I-131	
		Fe-59	
		Mn-54	
		Ru-106	
		Ag-110	
		Zn-65	
		Nb-95	

**N/A**-Samples not collected this quarter.

Note: Fish samples collected during the 2<sup>nd</sup> and 4<sup>th</sup> quarter.

# Virginia Department of Health

## SHELLFISH

January 1, 2017 through March 31, 2017

FIRST QUARTER REPORT 2017

Location Type of Fish	Date Collected	Isotope	pCi/gram
Surry Power Station      SPS-R-1 (Clams and Oysters)	N/A	Ba-140	
		Cs-134	
		Cs-137	
		Co-58	
		Co-60	
		I-131	
		Fe-59	
		Mn-54	
		Ru-106	
		Ag-110M	
		Zn-65	
		Nb-95	

**N/A**-Samples not collected this quarter.

Note: Shellfish are collected annually when available.

# Virginia Department of Health

## SILT

January 1, 2017 through March 31, 2017

### Surry Power Station Discharge Canal, James River – SPS-S-1

FIRST QUARTER REPORT 2017

Quarter	Date Collected	Gamma Activity pCi/gram			
		Cs-134	Cs-137	Co-58	Co-60
1st	02/14/17	<0.01	<0.01	<0.01	<0.01

### North Anna Power Waste Treatment NAPS-S-1

FIRST QUARTER REPORT 2017

Quarter	Date Collected	Gamma Activity pCi/gram			
		Cs-134	Cs-137	Co-58	Co-60
1st	N/A				
					Results not received from DCLS

N/A: Sample was not collected this quarter.

Note: Silt samples are collected bi-annually.

# Virginia Department of Health

## SILT

January 1, 2017 through March 31, 2017

### Newport News Shipyard

FIRST QUARTER REPORT 2017

Location	Date Collected					Gross Beta pCi/gram
James River – Pier 1 NNSB-S-1	03/21/17	Cs-134	Cs-137	Co-58	Co-60	Sample compromised ~ unable to analyze

Location	Date Collected					Gross Beta pCi/gram
James River – Shipway 11 NNSB-S-2	03/21/17	Cs-134 < 0.01	Cs-137 0.03 ± 0.01	Co-58 < 0.01	Co-60 < 0.01	28.9 ± 4.5

# Virginia Department of Health

## SILT

January 1, 2017 through March 31, 2017

### Newport News Shipbuilder

#### FIRST QUARTER REPORT 2017

Location	Date Collected	Gamma Activity pCi/gram			Gross Beta pCi/gram	Gross Alpha pCi/gram
Elizabeth River Drydock #4	03/21/17					
NNSY-S-1	Cs134	Cs137	Co58	Co60		
1st Quarter	< 0.01	0.02 ± 0.01	< 0.01	< 0.01	26.3 ± 4.4	15.59 ± 7.9
Elizabeth River Drydock #8	03/21/17					
NNSY-S-2	Cs134	Cs137	Co58	Co60		
1st Quarter	< 0.01	0.02 ± 0.01	< 0.01	< 0.01	29.4 ± 4.5	18 ± 7.8
Elizabeth River Wet Slip #1	03/21/17					
NNSY-S-3	Cs134	Cs137	Co58	Co60		
1st Quarter	< 0.01	0.03 ± 0.01	< 0.01	< 0.01	18.4 ± 4	< 8.1

# Virginia Department of Health

## Milk

January 1, 2017 through March 31, 2017

### FIRST QUARTER REPORT 2017

#### Louisa County - Lakeside Dairy NAPS-M-1

1st Quarter Date: 01/26/2017

Isotope	Results - pCi/Liter
Ba-140	< 12.0 pCi/L
Cs-134	< 3.0 pCi/L
Cs-137	< 4.0 pCi/L
K-40*	1.6 ± 0.1 g/L
I-131	< 3.0 pCi/L
Sr-89	< 4.0 pCi/L
Sr-90	0.79 ± 0.42 pCi/L

#### Surry County - Epps Dairy SPS-M-1

1st Quarter Date: 01/26/2017

Isotope	Results - pCi/Liter
Ba-140	< 20.0 pCi/L
Cs-134	< 5.0 pCi/L
Cs-137	< 4.0 pCi/L
K-40*	1.5 ± 0.1 g/L
I-131	< 5.0 pCi/L
Sr-89	< 4.0 pCi/L
Sr-90	0.85 ± 0.46 pCi/L

\*K-40 data is reported in units of grams/liter.

# Virginia Department of Health

## DOSIMETER (AMBIENT GAMMA EXPOSURE)

January 1, 2017 through March 31, 2017

### FIRST QUARTER REPORT 2017

Location	Station	Net Exposure Rate mR/Std Qtr +/- 2S.D.		
Pocahontas State Park (Control)	D-40	31.30	+/-	11.19
Surry Power Station	D-20	19.06	+/-	8.73
North Anna Power Station	D-35	23.65	+/-	9.73
Surry – Lebanon Baptist Church	D-41	17.36	+/-	8.33
Surry – Lawnes Creek	D-42	20.98	+/-	9.16
Surry – Route 628	D-43	19.66	+/-	8.87
Jamestown – Historical site	D-44	21.16	+/-	9.20
Newport News - Lee Hall	D-45	24.70	+/-	9.94
Louisa County - Mineral	D-50	20.53	+/-	9.06
Louisa County – Wares Crossroads	D-51	20.45	+/-	9.05
Louisa County – Good Hope Church	D-52	22.48	+/-	9.48
Spotsylvania Route 614	D-53	19.58	+/-	8.85
Louisa County – Fred Hall	D-54	19.96	+/-	8.94
Naval Weapons Station – 1	D-73	16.93	+/-	8.23
Newport News – Fort Eustis	D-76	20.69	+/-	9.10
Williamsburg – Busch Gardens	D-77	22.61	+/-	9.51
Williamsburg – Airport	D-78	17.67	+/-	8.41
Surry – Scotland Wharf	D-79	17.40	+/-	8.34
Surry – Bacon's Castle	D-80	16.84	+/-	8.21
Surry – Alliance	D-81	19.13	+/-	8.75
Surry – Hog Point	D-82	19.01	+/-	8.72
Louisa County – Route 685	D-84	20.42	+/-	9.04
Spotsylvania – Route 713	D-85	20.85	+/-	9.13
Louisa County – Bumpass Fire Dept.	D-86	23.22	+/-	9.64
Spotsylvania – Levy	D-87	21.94	+/-	9.37
Louisa County – Route 700	D-88	22.62	+/-	9.51
Louisa County – Aspen Hill	D-89	26.95	+/-	10.38
Radiological Health	Control 1	12.95	+/-	7.20
Radiological Health	Control 2	13.83	+/-	7.44

# Virginia Department of Health

## VEGETATION<sup>1</sup>

January 1, 2017 through March 31, 2017

### FIRST QUARTER REPORT 2017

Location	Date collected	Type	Isotope	Results pCi/gram
<b>Surry County</b>	<b>03/13/17</b>			
<b>Private garden</b>		Mixed Greens	I-131	
<b>SPS-V-1</b>			Cs-134	
			Cs-137	
<b>Louisa County</b>	<b>03/13/17</b>			
<b>Private Garden</b>		Mixed Greens	I-131	
<b>NAPS-V-1</b>			Cs-134	
			Cs-137	

**N/A:** Sample not collected this quarter.

Note: Vegetation is collected bi-annually when available.

<sup>1</sup> Results for the vegetation samples have not been received from the Division of Consolidated Laboratory Services.

# COMMONWEALTH OF VIRGINIA

## DEPARTMENT OF HEALTH

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### OFFICE OF RADIOLOGICAL HEALTH

109 Governor Street, 7<sup>th</sup> Floor, Richmond, Virginia 23218-2448

Office (804) 864-8150

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# BABCOCK & WILCOX

# Virginia Department of Health

## AIR PARTICULATE COMPOSITE SAMPLES

January 1, 2017 through March 31, 2017

Eastern Site Boundary – Ball field

### FIRST QUARTER REPORT 2017

	Start	Date	Stop	Gross Alpha Activity pCi/meter <sup>3</sup>		
<b>B&amp;W-A-1</b>						
<b>1st</b>	01/04/17	-	01/10/17	0.0004	+/-	0.0004

## SOIL

January 1, 2017 through March 31, 2017

Eastern Site Boundary / Six Mile Bridge Shoreline

### FIRST QUARTER REPORT 2017

Location	Date	Distance & Direction	Type	Alpha Activity ppm
<b>Eastern Site Boundary Ball field B&amp;W-S-1</b>	<b>N/A</b>	Site Boundary	Soil	+/-
<b>James River Shoreline Near Six Mile Bridge “control” B&amp;W-S-2</b>	<b>N/A</b>	1.5 miles SW	Soil	+/-

**N/A:** Sample not collected this quarter.

Note: Uranium separation followed by alpha counting.

# Virginia Department of Health

## SURFACE WATER

January 1, 2017 through March 31, 2017

### Eastern Site Boundary Shoreline / Six Mile Bridge Shoreline

#### FIRST QUARTER REPORT 2017

Location	Date	Distance &Direction	Alpha Activity ppb
<b>James River Shoreline Near Ball field at eastern site boundary B&amp;W-W-1</b>	<b>N/A</b>	Approx. 3 miles downstream	+/-
<b>James River Shoreline Near Six Mile Bridge "control" B&amp;W-W-2</b>	<b>N/A</b>	Approx 1.5 Miles upstream	+/-

**N/A:** Sample not collected this quarter.

## VEGETATION

January 1, 2017 through March 31, 2017

### Eastern Site Boundary / James River Shoreline

#### FIRST QUARTER REPORT 2017

Location	Date	Distance &Direction	Alpha Activity ppm
<b>Eastern site boundary Ball field B&amp;W-V-1</b>	<b>N/A</b>	Approx. 3 miles downstream	+/-
<b>James River Shoreline off Rt. 460 "control" B&amp;W-V-2</b>	<b>N/A</b>	Approx 4.5 Miles SW	+/-

**N/A:** Sample not collected this quarter.

Note: Uranium separation followed by alpha counting.

COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF HEALTH

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# EMERGENCY PREPAREDNESS

# EMERGENCY PREPAREDNESS

The Office of Radiological Health (ORH) located within the Virginia Department of Health (VDH) is one of the lead response agencies for emergencies involving the potential or actual release of radioactive materials. Overall, state level emergency response is described in the Commonwealth of Virginia Radiological Emergency Response Plan (COVRERP), which is developed and maintained by the Virginia Department of Emergency Management (VDEM). In addition to generic guidelines for responding to any major radiological emergency, the response procedures contain segments addressing response to several specific types of radiological incidents. This includes sections which provide information needed for response to Licensee and Transportation accidents. Other sections contain background information and response guidance for accidents at fixed nuclear facilities. Plans are also being developed to respond to possible radiological terrorist attacks, which may include detonation of a radiological dispersion device (RDD aka “dirty bomb”), an improvised nuclear device (IND), or a military grade nuclear warhead.

When responding to any radiological emergency, the primary tasks of the Office of Radiological Health are to locate, identify, and predict the impact of any radioactive materials released to the environment. Based on the predicted or known impact, ORH then recommends appropriate measures to protect the public. ORH would also be tasked with helping to supervise the cleanup of radiological contamination and ensuring the proper disposal of radioactive waste. An ORH duty officer maintains 24-hour coverage to provide initial assessment/assistance for local responders and may also initiate the mobilization/deployment of other trained staff to respond to a radiological emergency when needed.

Under the provisions of current Federal Emergency Management Agency (FEMA) regulations, ORH conducts or participates in periodic drills that are designed to provide team training and to test emergency plans and procedures. The scope of these drills ranges from receiving and acknowledging simulated emergency communications to full-scale team deployment.

Federal regulations for commercial nuclear power generating facilities stipulate that a full-scale exercise involving appropriate local government participation and testing all significant response elements must be conducted and evaluated every other year. Because there are two such facilities, Surry and North Anna Nuclear Power Stations, Commonwealth of Virginia agencies will perform exercise activities on a yearly basis, alternating between the sites each year.